Honeywell

T874C Thermostat and Q674F Subbase (For Heat Controller)

Installation Instructions for the Trained Service Technician.

Application

The T874C Thermostat provides low voltage (24 to 30 Vac) control for 2-stage heating and 1-stage cooling systems.

The Q674F Subbase provides wiring terminals, AUX. HEAT-HEAT PUMP-2 STG. HEAT-OFF-COOL system switching, and AUTO-ON fan switching for heat pump systems.

Operation

On a 2-heat thermostat, the two stages of heat *make* sequentially as the temperature drops. *Make* refers to the mercury switch initiating a call for heat or cool.

There are about 2°F (1°C) between stages so the second stage makes only when the first stage cannot handle the load. This is the *interstage differential.*

The light emitting diode (LED) indicators on the subbase light when something happens within the system. An LED is included on the subbase. When the LED lights, refer to this list for the meaning:

AUX. HT.: Auxiliary heat is operating, which means the weather is so cold that the heat pump alone cannot handle the load.

CHECK: System needs to be checked. See Heating/Cooling System Instructions for specific meaning.

LEDs are not field replaceable.

Recycling Notice

This control contains mercury in a sealed tube. Do *not* place control in the trash at the end of its useful life.

If this control is replacing a control that contains mercury in a sealed tube, do *not* place your old control in the trash.

Contact your local waste management authority for instructions regarding recycling and the proper disposal of this control, or of an old control containing mercury in a sealed tube.

If you have questions, call Honeywell Inc. at 1-800-468-1502.

Installation

WHEN INSTALLING THIS PRODUCT...

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation as provided in these instructions.

⚠ *CAUTION*

1. Disconnect power supply to prevent electrical shock or equipment damage.
2. Run wires as close as possible to the subbase. To prevent interference with the thermostat linkage, keep wire length to a minimum. Push excess wire back into the hole, and plug the hole to prevent drafts from affecting the thermostat operation.
3. Do not overtighten the thermostat captive mounting screws because damage to subbase threads can result.
4. Do not short across coil terminals on the relay. This can burn out the heat anticipator.

IMPORTANT: *Thermostats are calibrated at the factory by using subbases mounted at true level. Inaccurate subbase leveling causes thermostat control deviation.*

LOCATION

Install the thermostat about 5 ft (1.5m) above the floor in a well-circulated area of average temperature.

Do not install the thermostat where it can be affected by:

— drafts, or dead spots behind doors and in corners.
— hot or cold air from ducts.
— radiant heat from sun or appliances.
— concealed pipes and chimneys.
— unheated (uncooled) areas such as an outside wall behind the thermostat.

MOUNTING AND WIRING THE SUBBASE

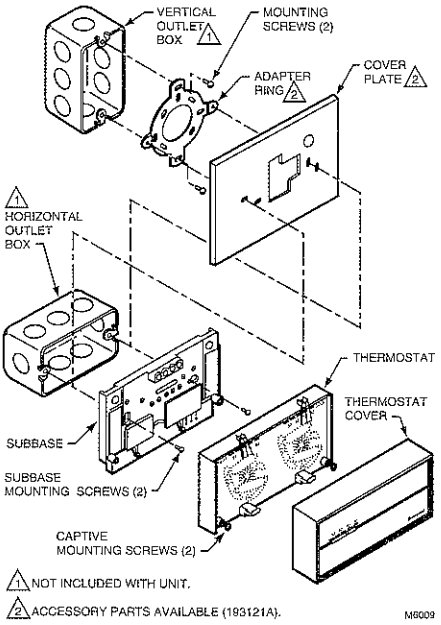
Disconnect the power supply to prevent electrical shock or equipment damage. All wiring must comply with local electrical codes and ordinances. Follow equipment manufacturer wiring instructions when available.

Mount the subbase on a wall or horizontal outlet box. If it is mounted on a vertical outlet box, order 193121A Adapter Assembly, which includes adapter ring with two screws, and a cover plate to cover marks on the wall.

To install subbase:

1. Prepare a hole for the thermostat wires at the chosen location. Run the wires to the location.
2. Pull about 6 in. (152 mm) of wire through the hole.

Fig. 1—Installation of Q674 Subbase on outlet box.



IMPORTANT: *Use 18 gauge, color-coded thermostat cable for proper wiring.*

3. If mounting the subbase on a vertical outlet box (Fig. 1), install the adapter ring with the two screws provided with the adapter assembly.

4. Pull the wires through the cover plate, if used, and through the subbase wire opening. Secure the cover plate and subbase with the two screws provided, but do not fully tighten.

5. The subbase mounting slots allow minor out-of-level adjustments. Level the subbase using a spirit level, as shown in Fig. 2, and tighten the subbase mounting screws.

IMPORTANT: *An incorrectly leveled subbase causes the temperature control to deviate from set point.*

Fig. 2—Leveling the subbase.

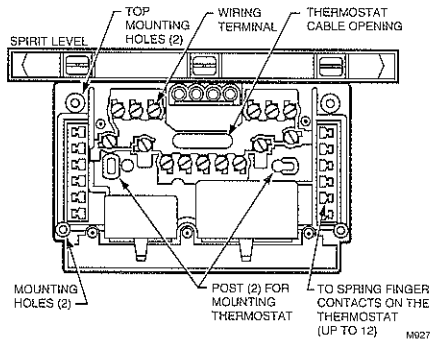


Fig. 3—Hookup and schematic for T874C Thermostat with Q674F Subbase.

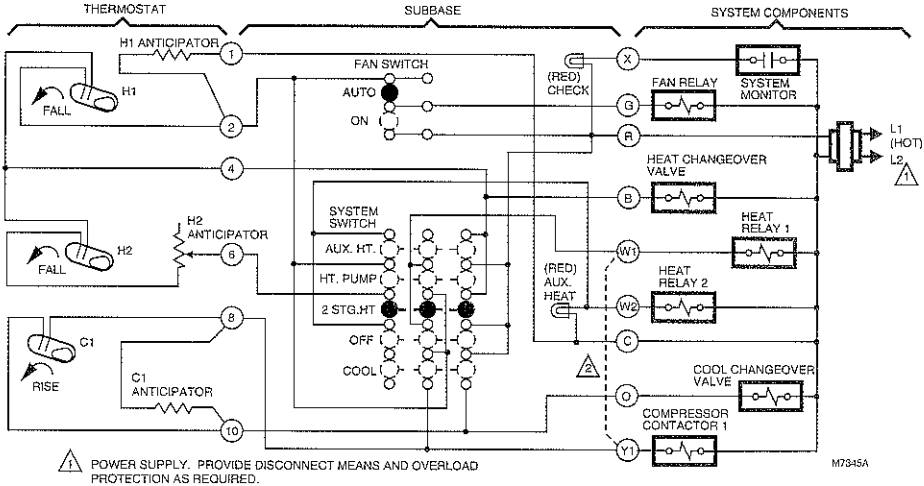
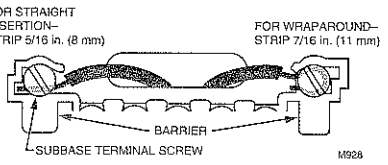


Fig. 4—Wiring connections.



6. Connect the system wires to the subbase as shown in Fig. 3. A letter code is located near each terminal for identification. The terminal barrier permits straight or conventional wraparound wiring connections (Fig. 4). Either method is acceptable. Run wires as close as possible to the subbase, keeping wire length to a minimum. Push excess wire back into the hole. Plug the hole to prevent drafts.

MOUNTING THE THERMOSTAT

1. Remove the thermostat cover by pulling the bottom edge of the cover upward until it snaps free from the cover clip.

NOTE: The cover is hinged at the top and must be removed by pulling up at the bottom.

2. Carefully remove and discard polystyrene packing insert, which protects the mercury switches during shipment.
3. Turn over the thermostat base and note the spring fingers that engage the subbase contacts. Make sure the spring fingers are *not* bent flat, preventing proper electrical contact with the subbase.
4. Set the heat anticipator indicators to the respective current setting for each stage. See Setting the Heat Anticipator section.
5. Note the tabs along the top inside edge of the thermostat base. The tabs fit into the subbase notches. Mount the thermostat base on the subbase and tighten the captive mounting screws. See Fig. 1.
6. Place the upper edge of the thermostat cover on the thermostat base and swing the cover downward until it engages with the cover clip on the base.

Setting

SETTING THE HEAT ANTICIPATOR

Set each heat anticipator to match its primary control current draw. If the primary control nameplate has no rating or if further adjustment is necessary, use the following procedure to determine the current draw of each stage. Measure the current draw with the thermostat removed and the power on.

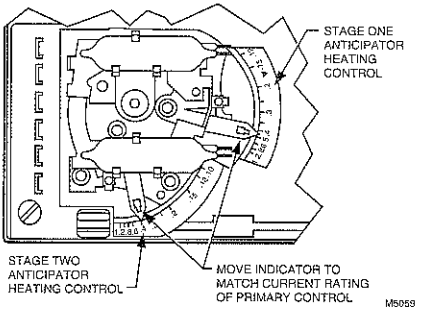
1. Connect an ac ammeter of appropriate range between the heating terminals of the subbase:
   Stage 1: between W1 and R;
   Stage 2: between W2 and R.
2. Move the system switch to HEAT.
3. After one minute, read the ammeter and record the reading.
4. After mounting the thermostat, set the adjustable heat anticipator(s) to match the respective reading(s) measured in step 3; see Fig. 5.

TEMPERATURE SETTING

Move the heating and cooling levers to the desired positions. The minimum differential between heating and cooling set points is 3°F (2°C), which means the setting levers are designed so they cannot be set closer together than 3°F (2°C).

If adjustable lever stops are desired, order 4074ECK Bag Assembly containing a brass insert, mounting screw, and two adjustable stops. See Fig. 6.

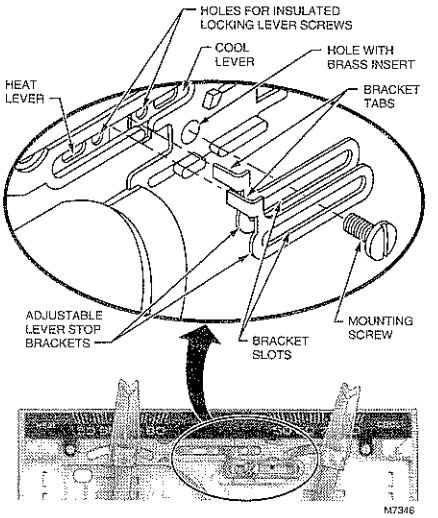
Fig. 5—Adjustable heat anticipator scales.


STAGE ONE ANTICIPATOR HEATING CONTROL
STAGE TWO ANTICIPATOR HEATING CONTROL
MOVE INDICATOR TO MATCH CURRENT RATING OF PRIMARY CONTROL
M5059

Push the brass insert lightly into the backside of the T874 in the hole below the LED space. On the face of the T874, place the two stops where they fit, just below the LED space. Insert the mounting screw through the two stops and into the brass insert.

This mounting screw pulls the brass insert up through the back of the plastic base. Loosen the screw enough so the stops can slide to the position desired. Then tighten the screw.

Fig. 6—Installing adjustable lever stops.



SUBBASE SETTING

System switching positions control thermostat operation as follows:

AUX. HEAT: Auxiliary heat relay is constantly energized. Cooling system is off. Compressor is de-energized.

HEAT PUMP: Heating and cooling systems are controlled by the thermostat.

2 STG. HEAT: Heat pump is off and only the second stage heat is operating. Cooling system is off. Compressor is de-energized.

OFF: Heating and cooling systems are off. If the fan switch is in the AUTO position, the cooling fan is also off.

COOL: Thermostat controls the cooling system. Heating system is off

Fan switching positions control fan operation as follows:

ON: Fan operates continuously.

AUTO: Fan operates with cooling equipment as controlled by the thermostat or with the heating equipment as controlled by the plenum switch.

To switch positions, use thumb and index finger to slide lever to desired position. Stop switch lever in detent over desired function indicator mark for proper circuit operation.

Checkout

HEATING

Move the system switch on the Q674 Subbase to HEAT. Move the heating lever on the T874 Thermostat about 10°F (6°C) above room temperature. Both stages of heating should start and the fan should run after a short delay. Move the heating lever about 10°F (6°C) below room temperature. The heating equipment should shut off, and the fan should run for a short time, then shut off.

COOLING

Move the system switch on the Q674 Subbase to COOL. Move the cooling lever on the T874 Thermostat about 10°F (6°C) below room temperature. The cooling equipment and fan should start. Move the cooling lever about 10°F (6°C) above room temperature. The cooling equipment and fan should stop.

FAN

Move the subbase system switch to OFF, and the fan switch to ON. The fan should run continuously. When the fan switch is in the AUTO position, fan operation is controlled by the heating or cooling system.

Calibration

THERMOSTAT

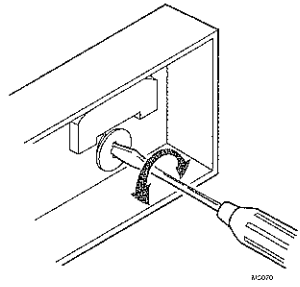
T874 Thermostats are accurately calibrated at the factory. *They do not have provision for field calibration.*

THERMOMETER

1. Remove the thermostat cover by pulling up from the bottom of the cover until it clears the cover clip.
2. Set the cover on a table near an accurate thermometer.
3. After allowing five or ten minutes for stabilization, compare the readings. If they are the same, replace the cover and put the system into operation. If they are different, recalibrate the thermostat thermometer; see step 4.
4. Insert a small screwdriver in the thermometer shaft (Fig. 7) and turn it until the thermometers read the same. When the thermometer is calibrated, replace the cover and place the system in operation.

NOTE: Hand heat will offset the thermometer reading. After making each adjustment, wait five or ten minutes for the thermometer to stabilize before comparing.

Fig. 7—Thermometer calibration.



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